Issues from the NAC science committee meeting

Neil Murphy

NAC Science Committee/NAC meeting

Meetings held July, 2015 at JPL

NAC science committee followed by NAC meeting

Several issues from HPS presentation

HPS July 2015 Discussion About Risk

The Senior Review discussion led HPS to discuss flight projects risks and future potential costs of risk intolerance.

The HPS reflected that there is a general perception in the science community that flight projects are over-reviewed, and consequently that **it would be helpful to evaluate statistics on the number of formal reviews for as many flight projects (by project) as possible over the period of current and previous Decadal Surveys and to compare these data with the final development cost of the projects.**

The motivation would be to determine if reviews are occurring at too high a cost-to-benefit ratio.

Level of Flight Project Review

…However, the HPS formed a consensus opinion that there has been an expansion of reviews in flight projects, and it would like to develop statistics on the number of formal reviews in terms of cost benefits. Some feel that the number of reviews is detracting from time spent on missions.

..Dr. Peterson returned to the issue of the number and nature of individual flight projects reviews. Dr. Green noted that projects awarded under Class D are having oversight at a Class B or A level. There sometimes is a pre-review a week before the real review that requires personnel to travel and a short report. Dr. Lindberg suggested that facts be collected, such as the requirements of a D project and what is happening on those projects…

HPS July 2015 Recommendation for SC Consideration

Recommendation for SC Consideration: NASA should explicitly offer the use of fueled payload adapter fittings [PAFs] as part of their launch services, or alternatively enable use of such capabilities by the proposers outside the cost cap as long as the total cost for the new PAF capability is less than the official cost of the dedicated launch option for any given Announcement of Opportunity.

Major Reasons for Proposing the Recommendation: The use of fueled PAFs[1,2] in place of traditional Explorer launch options is currently not a standard launch option. Such an option could enable a wider range of low-cost Explorer missions, for example full missions that are within the Mission of Opportunity cost cap. Currently the savings from alternate launch capabilities are firewalled from the proposing team's use towards their launch costs as secondaries, significantly reducing the budget available for the mission. There is a perception of risk associated with fueled PAFs, as they are not an approved NASA launch service (per NPD 8610.7d attachment A). Allowing fueled PAFs to be considered part of the proposer's flight system will provide sufficient oversight to retire any actual risk.

[1]*SHERPA modified ESPA ring on Falcons: http://www.spaceflightindustries.com/sherpa/*
[2]*LCROSS ESPA ring on EELVs: https://en.wikipedia.org/EELV_Secondary_Payload_Adapter*

Consequences of No Action: A wide range of orbits at reduced costs to NASA would be unavailable if fueled PAFs are not utilized for new science.

PAFs

SC Rec on Payload Adapter Fittings (PAFs)

Peterson - This is regarded as a safety issue as it is secondary payloads. What we are requesting is that fueled PAFs are not dismissed out of hand but considered on a case by case basis.

John who is representing Blakey – If this is more efficient why not embraced?

Peterson - Its a safety issue we don't want your secondary mission carrying fuel.

Hubbard - I don't know what a PAF is, need more information.

Squyres - What are the launch vehicles to which this would apply?

Peterson - It came up in context of Explorers. It applies to everything in a blanket way.

Squyres – From which subcommittee did it originate?

Peterson – From HPS and it was discussed in detail.

Squyres - PAF is just the structure.

Peterson – The question is - can you put a motor in it?

Bowersox - Needed for a cubesat primary payload - has fuel.

Squyres - Is the propulsion system in the PAF?

Peterson – Yes, it is in the adapter fitting.

Young – If I was JWST, I don't want secondary fueled payload system in it.

PAFs

Bowersox - Sounds like putting an adapter fitting in second stage, not that big a deal if airborne. Can we get more detail from the folks interested in this for tomorrow?

Austin – We need more of an engineering presentation and not sure this is the right body. If it is a good engineering idea, not sure why coming here.

Peterson - Nowhere else to go.

Bowersox - It crosses directorates so it is not a recommendation to John.

Squyres - This is a NAC-level issue. I think we have the expertise on it to decide, if we have a presentation about how is it mounted on it, how integrated, what are the safety issues, the reviews, the costs.

Ballhaus - Who is accountable for the primary payload and what do they think about it. Who is accountable for the stack and what they think about it.

Peterson - That is the intent. Right now there are restrictions on it. Ballhaus - Why are they not allowed?

Young – Why?
Peterson – I believe it is a safety policy.
Hubbard - I don't know what it is.
Peterson – Should we arrange a presentation for next time?

Squyres - Table this one because we have not been presented with enough information to make a judgment. We can't make recommendations that NASA change its safety policy when we are not sure what we are talking about.

PAFs

Issue: Use of fueled PAFs. I think it's fair to say we got pretty well beat up on this issue. Too many questions I couldn't answer:

Why are these not allowed already? Safety issue? Are they disallowed only on Explorers or other launch vehicles as well? Does this apply only to hypergolic fuels? Where is this restriction found (i.e., what documents)? In any event, we need to communicate with the Technology, Innovation, and Engineering Committee, this should be a joint recommendation if there are mission safety issues.

…The third issue, in particular, is going to require a lot of homework before I'll be prepared to take it forward again.

Radiation and Human exploration

Comments from NAC town-hall meeting with the NASA administrator

… will you be using data form DISCOVR?...

..radiation risk for human transit to Mars

Issue to Monitor – Heliophysics Proposals

Peterson - This item is pervading all of space science right now. HPS is concerned about grants oversubscription and ease the burden on grant writers and proposers. We think the HPD policies developed for grants is their business, and the AAAC task force is addressing oversubscriptions of the grants programs. No action should be taken prior to the report. Issue came up, it is inappropriate for us or you to deal with now, but it is a real issue and over time we will have to address it.

Spergel - People feel a lot of grant pressure; and people come to us on how to encourage augmentation of the grant program. In terms of demographics, be mindful of what happened to NIH had a doubling of grants but then it flattened and the demographic impact on biomedical community has been devastating. People bring this up but be aware of the implication in terms of science maximization.